

ABSTRACT OF THE DISCLOSURE

The present invention incorporates triple-mode, mono-block resonators that are tunable. Four novel and unobvious methods of tuning are disclosed. The first tuning method is to mechanically grind areas on three orthogonal faces of the mono-block in order to change the resonant frequencies of the three modes in each block. Another method of tuning frequency is to cut a slot within a face of the resonator. A third method of tuning the mono-block is to tune the resonant frequency of a particular mode by removing small circular areas of the conductive surface from a particular face of the mono-block. The fourth tuning method is the use of discrete tuning elements, with 3 elements distributed among three orthogonal faces of the mono-block, to affect the necessary change of the resonant frequencies.